Notice No.1

Rules for the

Application of Sandwich Panel Construction to Ship Structure, July 2021

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Please note that corrigenda amends to paragraphs, Tables and Figures are not shown in their entirety.

Issue date: November 2021

Amendments to	Effective date	IACS/IMO implementation (if applicable)
Chapter 3, Section 3	1 January 2022	N/A



Chapter 3 **Design Basis for Panels**

Section 3

Panel scantling requirements – decks loaded by wheeled vehicles

3.2 Decks loaded by wheeled vehicles

The scantlings of vehicle deck panels are to satisfy the most severe arrangement of print wheel loads.

Existing paragraph 3.2.1 has been renumbered as 3.2.2.

(Part only shown) 3.2.2 3.2.3 The bending stress, σ_b , in the panel subjected to wheeled vehicles is to be taken as:

$$\sigma_b = rac{lpha_{
m w} P_1}{\left(rac{d_{
m T}^3 - t_{
m c}^3}{6d_{
m T}}
ight)} arphi$$
 N/mm 2^2

where

$$\alpha_{w} = \left[(C_{1}t_{\text{n-av}} + C_{2})t_{\text{c}} + C_{3}t_{\text{n-av}} + C_{4} + (C_{5}s + C_{6}) + C_{7}\left(\frac{w}{l}\right) 2^{2} + C_{8}\left(\frac{w}{l}\right) + C_{9} \right] 10 - 3^{-3}$$

 $= \frac{500}{m}$ where the wheel load is assumed to be adjacent to the girder, see Figure 3.3.1 Diagrammatic illustration of wheel load location and size

= load, in tonnes, on the tyre print. For closely spaced wheels the tyre print area may be taken as a combined print area, P_{w} see also Ch 3, 3.2 Decks loaded by wheeled vehicles 3.2.6

= dynamic magnification factor

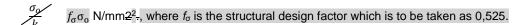
= 1,25 for harbour conditions

= $\frac{(1+0.7n)}{(1+a_z n)}$ for sea-going conditions

az is the vertical acceleration at the location under consideration, see Pt 3, Ch 9, 9.2 Loading 9.2.3 of the Rules and Regulations for the Classification of Ships

Existing paragraph 3.2.3 has been renumbered as 3.2.4.

3.2.3 3.2.4 The bending stress, σ_b , in Ch 3, 3.2 Decks loaded by wheeled vehicles 3.2.2 3.2.3 is to be less than



Where decks are designed for the carriage of wheeled vehicles only or where the panels are subjected to a distributed load in addition to the vehicle loading, the scantling requirements are to be specially considered on the basis of direct calculation. The load area is defined as the footprint of an individual wheel or the area enclosing a group of wheels when the distance between footprints is less than the smaller dimension of the individual prints. The structural design factor, f_0 , is to be as required by Pt 3, Ch 9, Table 9.3.6 Structural design factors of the Rules and Regulations for the Classification of Ships.

3.2.6 The vehicles are to be positioned so as to produce the most severe loading condition for each panel under consideration. © Lloyd's Register Group Limited 2021 Published by Lloyd's Register Group Limited Registered office (Reg. no. 08126909) 71 Fenchurch Street, London, EC3M 4BS United Kingdom

Lloyd's Register and variants of it are trading names of Lloyd's Register Group Limited, its subsidiaries and affiliates. For further details please see http://www.lr.org/entities

Lloyd's Register Group Limited, its subsidiaries and affiliates and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.